

The Story of Brushes

**The Various Kinds of Bristles and the Purposes for Which They Are Used
—Difference Between Russian and Chinese Bristles—Methods of
Handling—Prices of Brushes About the Same as
Thirty-five Years Ago**

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A wonderful city of 400,000 mixed racial population leaps into existence every year, exists for 43 days, from July 29th to September 10th, and then disappears. This wonderful "Fair" city, Nishni Novgorood, Russia, is a first centre of distribution of many important materials entering into the manufacture of brushes.

Several times a year at Leipsic, Germany, are held similar "Fairs," at which brush materials are offered from Russia and distant points, and to Leipsic at these Fairs the world goes for a large part of its supply of European bristles and other brush materials. Many other articles from a distance are sold there at these times, and the public squares and streets are lined with booths and temporary stands for their display and sale, making a very interesting sight to the tourist. These two places are the great mercantile starting points of brush materials other than Chinese bristles, which come from Tientsin, Shanghai and Hankow.

Everyone must use brushes. Some use them for comfort, health or adornment only. Artists, artisans, mechanics and many professions use them for livelihood. Few articles are in use so generally by all as brushes are, and there is almost a complete lack of information in regard to them by everyone. The first thing of which an expert thinks in connection with brushes, is bristles, from which nearly all good brushes are made. Bristles, more than any other article, create the brush industry. Hogs in most countries do not produce bristles of commercial value. As with furs, nearly all bristles which are of use to brush makers come from cold climates. The United States, a great pork producing

country, contributes hardly anything to the world's supply of bristles, the reasons being that animals end their careers young while bristles are short and worthless, and improved breeds produce few bristles.

Russia and China supply nearly all the bristles used in brushes, and they are all used for brushes. Other raw materials are used for many purposes; bristles are limited to one industry, which has difficulty in obtaining enough for its requirements, with values constantly rising. Bristles are only a by-product, as hogs are never grown solely for their bristles. The supply of bristles is less each year, while the demand for brushes is greater. There is no perfect substitute for bristles, but other materials are used instead of bristles, which always make less desirable brushes.

A vegetable fibre from Mexico called "Tampico," is the substitute used most largely for bristles, but its character is so evident that few are deceived by it. It costs very little compared with bristles. Horsehair is used very largely in brushes in combination with bristles. Its appearance in some kinds of brushes is deceptive, and generally where used injures the quality of brushes more than it cheapens the prices. In hair brushes and some other kinds of toilet brushes, split quills are used to cheapen quality. There are not many other articles used as substitute for bristles. Brushes are made of other substances, but they are generally named properly, and users are not deceived. There is not a large number of substances which can be used as substitutes for bristles in brushes, and they are not very deceptive to those familiar with brushes.

THE RUSSIAN BRISTLES

Of first importance to the brush industry are Russian bristles, which country supplies many kinds of bristles and all the long stiff bristles necessary for best brushes. Good toilet brushes and other kinds with stiff bristles, paint brushes, and other kinds with long bristles, depend on Russia. Bristles are white, yellow, gray or black. For actual wear, the color makes no difference when stiffness is same, but white sells at highest price. Take a bundle of good quality white Russian bristles called "Okatka," and a like bundle which has been separated into its different lengths by process called "dragging." Its bristles appear to be $6\frac{1}{8}$ inches long, but "dragging" it develops sizes about $1\frac{1}{5}$ inch apart and down to the bottom length which is only $4\frac{1}{4}$ inches long. As different lengths of bristles have different values, one can realize how important it is to the brush manufacturer that a cask of bristles does not have too many short bristles mixed with others. If he buys a 6-inch length stock, he cannot afford to have it loaded with a large percentage of short bristles.

The next great bristle producing country to Russia is China, and China sends only black bristles. A brush made of Chinese bristles will not wear as long or do as good work as a brush of equal elasticity, size, etc., made of European bristles. Chinese bristles are more brittle, not nearly as tough as other kinds, and have a hard, polished surface which is not desirable in brushes.

Germany is third in importance in the production of bristles. The amount produced by all other countries than those named is very small. Perhaps India sends as much as any of the small producing countries.

France produces a limited quantity of fine white bristles which are of great value in making varnish and artists' brushes. Chinese bristles have elasticity equal to other kinds, but wearing qualities are poorer.

HOW BRISTLES ARE HANDLED

Much could be said in regard to bristles that would be understood by experts in the business, and of little interest generally. A few facts in regard to their characteristics and what is done to them are enough out of the ordinary to be in-

teresting. Rubbing a bristle between one's finger and thumb shows that they will always move towards the larger, solid end, and never towards the split, soft end. This enables brush manufacturers to rearrange and have butts of bristles all at one end of a bundle, when they have become mixed and disarranged. Rubbing a mass of them makes the bristles move in each direction, as they may be headed, and when they have traveled full length, the two separated parts are placed together with ends as desired. A paint, varnish, artist, or similar kind of brush for use needs the soft ends to get desired results, and rubbing a bundle of bristles by the soft, or "flag" end over a flour sieve pulls out the few harsh butt ends sometimes found misplaced. The first named process changes the bristles end for end when the mass is generally disarranged, and is of great benefit in enabling manufacturers to recover sweepings from floor, and bristles which would otherwise in their disarranged condition not be adapted to general use in brushes.

Generally, when received by brush manufacturers, the condition of bristles is little changed from that in which they leave the original sources. They must be washed clean and dried in such a way as to keep them straight and in condition for use. The colors are separated and then the lengths are "dragged," as it is called, that is, separated into brush-makers' sizes of about one-fifth of an inch to a size.

Separating bristles into lengths is done by pulling out of a bundle the long lengths, arranging them in about one-fifth of an inch sizes, each length by itself. Afterwards different kinds and lengths of bristles are mixed together to get the proper stiffness and other required features, which brushes must have for different purposes. For example, bristles for paint brushes are very different from those used in varnish brushes, and also, from those in artists' brushes, and from whitewash brushes. Therefore, a very important feature of making brushes is to use for each kind of brush the bristles best adapted.

HOW SELECTION IS MADE FOR BRUSHES

The most important feature in the manufacture of brushes is making them of good quality bristles of different kinds.

properly blended. You cannot make a paint or similar brush out of all stiff bristles, nor of all soft bristles, nor of bristles all the same length. There must be a perfect blending of different kinds and lengths of bristles. This is the high art of brush making, and why no novice ever succeeded.

An illustration of the composition of bristles entering into a good quality paint brush. A collection shows the various sorts and lengths used for this particular size brush. There are seven kinds used. Another bundle shows these kinds of bristles mixed ready to put into a brush. The knowledge of what kinds of bristles to use and the ability to mix them thoroughly are of first importance. You can buy things that look like brushes which contain only troubles for you, but to get a paint or similar brush that will suit you, you must get one that has good bristles properly prepared.

A marked characteristic of bristles is that they are bent or bow shaped. None are perfectly straight. This "bend" as it is called, must be taken into consideration in brushes used for painting, varnishing and like purposes, and made with the bend tendency towards centre of ends of brushes, therefore, must be so made as to have the bristles hang together and not spread like feather dusters.

Red sable hair used in artists' painting brushes is the most valuable hair put into brushes. It is not plenty, it is sometimes as valuable as gold. It has the rare combination of fineness, great toughness, wearing out slowly, and has wonderfully soft ends to hairs, with great elasticity.

There are hairs from other small animals which have some of the features of red sable. No other kind of hair has all its desirable ones. Camel hair brushes (made of squirrel hair), have softness of ends and fineness, only. Fitch hair brushes are elastic and in a degree tough, but become harsh as worn down. Badger hair is tough and coarse. Other kinds all lack some features desired, so that artist and brush maker pay a high price to get red sable hair, a product of cold Siberia. The unpopular skunk is a producer of hair for varnish brushes and is used in large quantities. In a brush it is re-named Fitch hair. Ox hair and bear hair are two other kinds largely used in making varnish brushes.

FIRST BRUSH CONSTRUCTOR UNKNOWN

The appearance and construction of the first brush has not yet been discovered, nor do we know what the first brush was used for. If used for making signs, symbols, or writing; a reed, quill or other small tube had hair, or fibre inserted in one end to make a brush. Brushes so made are used for lettering, writing and other purposes now, and are undoubtedly same in every respect as they have been for an indefinite time. If the first brush was used to spread color on surface of anything, probably it was made of a bunch of vegetable fibre tied with bark, the handle being a later thought. Among uncivilized tribes and countries, brushes are used now which are only bunches of vegetable fibre tied with bark or horse-hair. At present in parts of Mexico and Central America, the only brushes used by natives are so made, all kinds have the same shape, a paint brush, a white-wash brush, a hair brush, a scrub brush, or other kinds, is a bunch of vegetable fibre varying in stiffness and coarseness, according to the purpose for which it is used.

MANUFACTURERS BRAND GOODS

When you buy brushes, you serve your interests, if you buy those having brands with which you are familiar and which are stamped with the manufacturer's name. There is not a first-class brush manufacturer who will change the quality of his brushes when stamped with his own name. What is done when otherwise stamped is not so sure, as responsibility is divided.

The growth and improvements in brush making have been very great, and form and shape of brushes are now adapted to every purpose. From the single shape of nearby Mexico to the thousands of sizes and kinds made by some manufacturers, the industry has become an important one. Brush making and shoe making a century or more ago were household industries. Present methods have changed their manufacture to factories. Previous to 1865, all paint, varnish and similar kinds of brushes were made with bristles through entire length of ferrules, which means that the length of a brush, including ferrule, was actual length of bristles used. At the time

named, John L. Whiting, originated the idea that it was not necessary for bristles to go entire distance of ferrule, but that a disk of wood might occupy a portion of the distance beyond the butts of bristles, without impairing the fastening of the bristles in a brush. Previous to using this idea of plain wood filling, he invented a better method of using wood disks having peg projections which entered the bristles. These two ideas have saved more money to users of brushes than any other invention in the brush industry. These ideas, now used by brush manufacturers everywhere, reduce cost of brushes to users, as the saving in weight of bristles used, as well as shorter length, is of great value. The prices at which bristles are sold depend on length as well as color, and as brushes are made with exact weight for each brush, the use of shorter bristles saves on price of bristles, and also weight.

Practically all brushes at the present time, as made by every manufacturer, are strongly made and will not shed bristles, or fail under any usage for which a brush should be used. The holding parts of brushes are now perfected so that brush users have very little cause to complain. The number of brushes which fail is very few, and manufacturers always assume all responsibility when they are at fault. They object to assuming the loss when they are in no way to blame. They do not feel at fault if bristles are burnt in using a brush. They cannot make brushes stand usage as hammers, they cannot prevent water from swelling wood and shrinkage when dry. A few things of this kind occur, but not many. Manufacturers find that brush users are reasonable and know if they have hurt brushes by hard, improper usage, they do not do it again.

Brush users must not expect to get as much wear out of brushes made of Chinese bristles as out of Russian bristles, and they must not expect Chinese bristle brushes to do as good work as Russian bristle brushes. The brush manufacturer is not to blame if Chinese hogs do not have as good bristles as Russian hogs. Undoubtedly the Chinese hogs do their best, but their environment, or something, prevents them from growing best quality bristles.

It is economy on the part of brush users to buy brushes made of Russian bristles, as they wear longer, and it is an advantage to use Russian bristle brushes as better results are obtained.

Something in a reminiscent way about brushes may interest you. A good many years, ever since the time when you used hardly any but round paint brushes, sash tools and oval varnish brushes, and later when you commenced to try flat super wall brushes. We all remember the time when a combined brass and leather binding for wall brushes was made and prevailed for quite a while, before you would give metallic bound flat wall brushes favorable consideration. It is not so long ago since you required a great deal of coaxing before you would buy a brass wound wall brush. Leather was what everyone wanted for binding. At the present time, as a rough guess, one house sells about one thousand times as many metallic bound wall brushes as it does leather bound. Then again, think of the change from white bristles to black bristles in brushes. Black Chinese bristles are not as good as white European bristles and will wear out more quickly, but they are used very extensively. A few years ago, not a painter would have them. Not many years ago, if there were offered black bristle brushes, we were charged with trying to sell "whalebone" brushes. I suppose some of us who have passed the half-way point are inclined to think of the old days and the old style goods as the best, but it isn't so as regards brushes.

Brush manufacturers who have lived as business houses, are, I think, all making to-day the same style and brands of brushes as they made fifty or more years ago, with same kinds of bristles. They are making a whole lot of other kinds in addition, but if you want a 5/0 Okatka round paint brush, you can get it to-day just like the one you bought in 1865, and the price is about the same. I took occasion not long ago to compare our selling prices of 1875 with present prices, expecting to find great changes, but did not find a very marked difference between prices then and now on identical lines. "Increased cost of living" so far as brushes are concerned, is a myth.